HS1E Series Full Size Solenoid Locking Switches

HS1E features:

- Basic unit and solenoid unit in one housing
- Plastic Housing: Light weight
- Ease of Wiring: All the terminal screws are M3.5
- Available with a red or green indicator
- Choose from 4 circuit configurations
- When mounting the actuator on a movable door, and the switch on a machine body, the door can be mechanically locked when closed
- Greater Safety: The door is unlocked by a solenoid lock-release signal from a PLC or other source after the machine has stopped
- In the event of power failure or for machine maintenance, the door can be unlocked using a special tool
- Flexible Installation: The actuator can be accessed from two directions



EN1088
EN60947-5-1
IEC60947-5-1

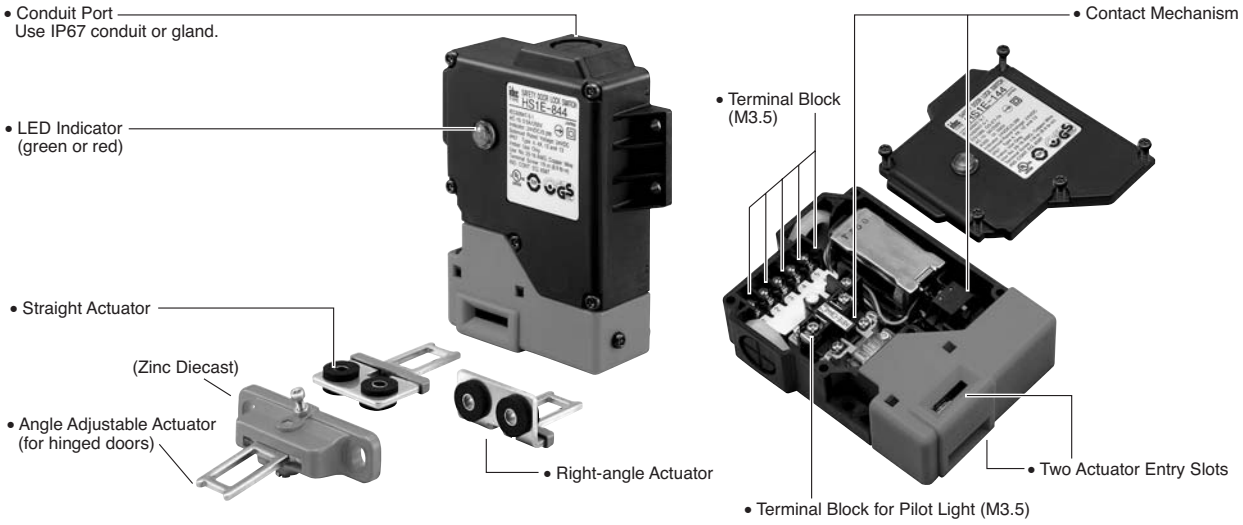
GS-ET-15
BG standard
in Germany

Certificate No.
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Direct Opening Action

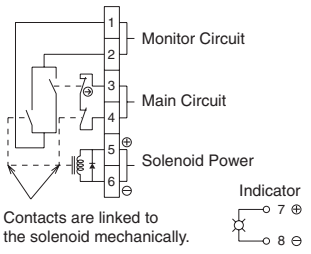
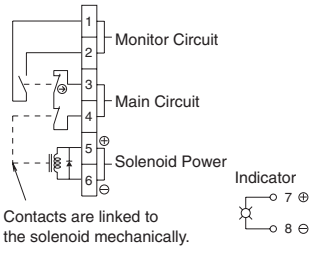
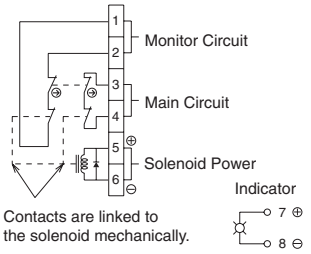
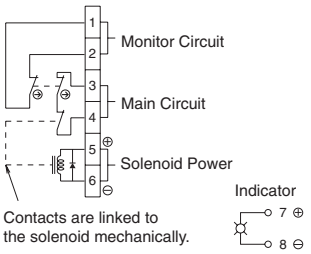
Double Insulation

HS1E Series Functionality



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Part Numbers

Actuator Retention Force	Lock Mechanism	Contact Configuration		Conduit Port Size	Model: Indicator	Model: Manual Unlock Key	Part Number
1500N (when locked)	Spring Lock	Main circuit: 1NC + 1NC Monitor circuit: 1NO/1NO		G1/2	—	—	HS1E-40R
					With	—	HS1E-44R-②
					—	With	HS1E-40KR
					With	With	HS1E-44KR-②
		Main circuit: 1NC + 1NC Monitor circuit: 1NO		G1/2	—	—	HS1E-140R
					With	—	HS1E-144R-②
					—	With	HS1E-140KR
					With	With	HS1E-144KR-②
		Main circuit: 1NC + 1NC Monitor circuit: 1NO + 1NC		G1/2	—	—	HS1E-240R
					With	—	HS1E-244R-②
					—	With	HS1E-240KR
					With	With	HS1E-244KR-②
		Main circuit: 1NC + 1NC Monitor circuit: 1NC		G1/2	—	—	HS1E-340R
					With	—	HS1E-344R-②
					—	With	HS1E-340KR
					With	With	HS1E-344KR-②

1. Key wrench for TORX screws (HS9Z-T1) is supplied with the interlock switch.
2. Specify color code in place of ② in the part number. G: green, R: red
3. Actuator is not supplied with the interlock switch, and must be ordered separately.
4. TORX is a registered trademark of Camcar Textron.

Actuator Keys & Accessories

Item	Part Number	Description	Item	Part Number	Description
	HS9Z-A1	Straight Actuator (Mainly for sliding doors)		HS9Z-T1	Key Wrench (included with switch)
	HS9Z-A2	Right-angle Actuator (Mainly for rotating doors)		HS9Z-P1	Conduit Opening Plug
	HS9Z-A3	Adjustable Actuator		HS9Z-KEY1	Replacement Manual Unlocking Key

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Specifications

Conforming to Standards					EN1088, IEC60947-5-1, EN60947-5-1(TUV), ISO14119, GS-ET-19 (BG), UL508, CSA C22.2 No. 14 (c-UL)	
Applicable Use					IEC60204-1, EN60204-1	
Operating Temperature					–20 to +40°C (no freezing)	
Storage Temperature					–40 to +80°C	
Operating Humidity					40 - 85% RH (no condensation)	
Altitude					2,000m maximum	
Rated Insulation Voltage (Ui)					300V (between LED or solenoid and ground: 60V)	
Impulse Withstand Voltage (Uimp)					4 kV (between LED or solenoid and ground: 2.5 kV)	
Insulation Resistance (measured with 500V DC megger)					Between live and dead metal parts: 100 MΩ minimum Between live metal part and ground: 100 MΩ minimum Between live metal parts: 100 MΩ minimum Between terminals of the same pole: 100 MΩ minimum	
Electric Shock Protection					Class II (according to IEC61140)	
Pollution Degree					3 (IEC60947-5-1)	
Degree of Protection					IP67 (IEC60529)	
Vibration Resistance	**Operating Extremes**				10 to 55 Hz, minimum (amplitude 0.35 mm)	
	Damage Limits				50 m/sec^2 (approx. 5G)	
Shock Resistance					1,000 m/sec^2 (approx. 100G)	
Actuator Tensile Strength when Locked					1,500N minimum (per GS-ET-19)	
Actuator Operating Speed					1 m/sec maximum	
Positive Opening Travel					11 mm minimum	
Positive Opening Force					20N minimum	
Thermal Current (Ith)					Main circuit: 10A, Auxiliary circuit: 3A	
Rated Operating Current (Ie)	Operating Voltage (Ue)				30V	125V	250V
	Main Circuit	AC	Resistive load (AC12) Inductive load (AC15)		10A 10A	10A 5A	6A 3A
		DC	Resistive load (DC12) Inductive load (DC13)		6A 3A	– 0.9A	– –
	Auxiliary Circuit	AC	Resistive load (AC12) Inductive load (AC15)		– –	3A –	3A 3A
		DC	Resistive load (DC12) Inductive load (DC13)		3A –	– 0.9A	– –
Contact Gap					Main circuit: 1.7 mm min., Auxiliary circuit: 1.2 mm min.	
Operating Frequency					900 operations/hour max.	
Mechanical Life					1,000,000 operations min. (at full rated load) 900 ops/hr (AC-12/250V, 6A)	
Electrical Life					100,000 operations (rated load)	
Conditional Short-circuit Current					100A (per IEC60947-5-1)	
Recommended Short Circuit Protection					250V, 10A fuse (Type D01 based on IEC60269-1, 60269-2)	
Solenoid Unit	**Operating Voltage**				24V DC	
	Current				292mA	
	Coil Resistance				102Ω (at 20°C)	
	Pickup Voltage				20.5V maximum (at 20°C)	
	DropOut Voltage				2.4 minimum (at 20°C)	
	Allowable Voltage				26.4V max (continuous)	
	Insulation Class				Class F	
Indicator	**Operating Voltage**				24V DC	
	Current				10 mA	
	Light Source				LED lamp	
	Lens Color				Red or Green (12 mm dia. Lens)	
Weight					Approx. 500g	

Part Number Key

HS1E - 2 4 4 K R - R

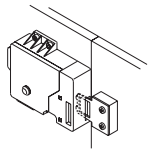
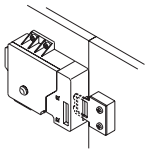
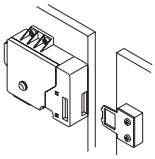
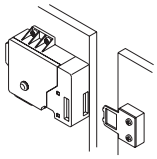
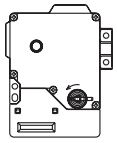
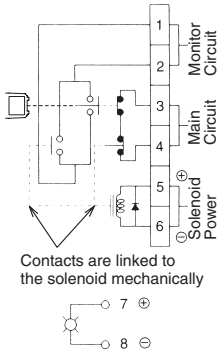
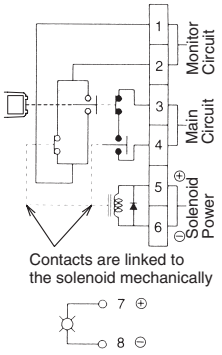
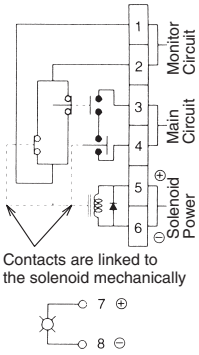
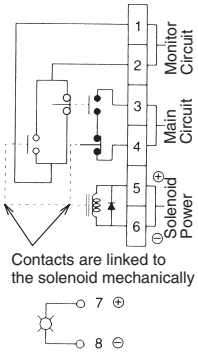
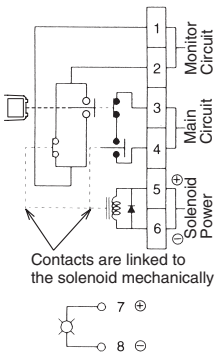
- **Indicator Color:** R (Red), G (Green)
- **Manual Unlock Key:** K (with actuator), 0 (without actuator)
- **Indicator Rated Voltage:** 4 (24V DC), Blank (without indicator)
- **Circuit Code**

	Main Circuit	Auxiliary Circuit
Blank:	1NC + 1NC	1NO/1NO
1:	1NC + 1NC	1NO
2:	1NC + 1NC	1NC + 1NC
3:	1NC + 1NC	1NC

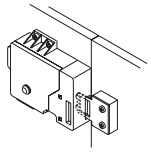
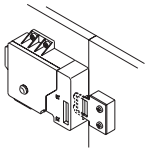
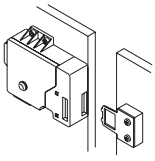
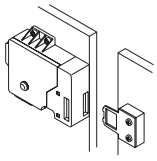
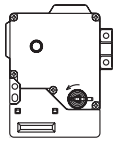
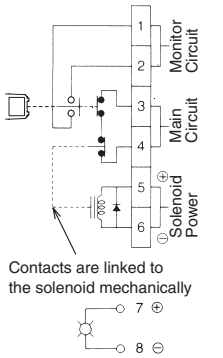
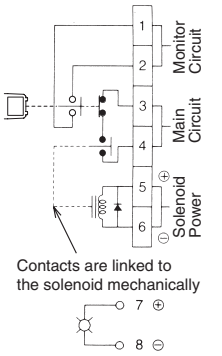
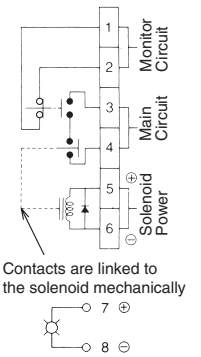
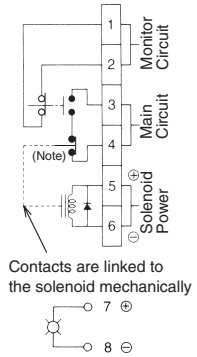
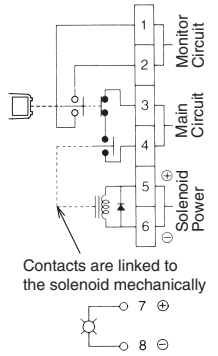
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Application Examples and Circuit Diagrams

HS1E-4 (Main Circuit: 1NC-1NC, Auxiliary Circuit: 1NO/1NO)

	Status 1	Status 2	Status 3	Status 4	Unlocked Manually
Switch/Door Status	• Door Closed • Machine ready to operate • Solenoid de-energized	• Door Closed • Machine cannot be started • Solenoid de-energized	• Door Opened • Machine cannot be started • Solenoid energized	• Door Opened • Machine cannot be started • Solenoid de-energized	• Door Closed • Machine cannot be started • Solenoid de-energized
Door					
Circuit Diagram					
Main Circuit	3-4: Closed	3-4: Open	3-4: Open	3-4: Closed	3-4: Open
Aux. Circuit	1-2: Open	1-2: Closed	1-2: Closed	1-2: Closed	1-2: Closed
Solenoid	5-6: Power OFF	5-6: Power ON	5-6: Power ON	5-6: Power OFF	5-6: Power OFF

HS1E-14 (Main Circuit: 1NC-1NC, Auxiliary Circuit: 1NO)

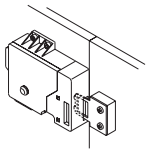
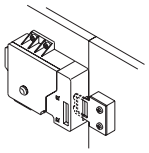
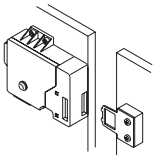
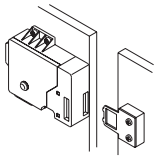
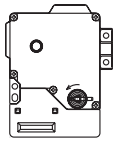
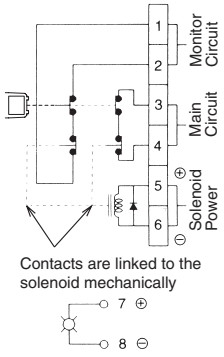
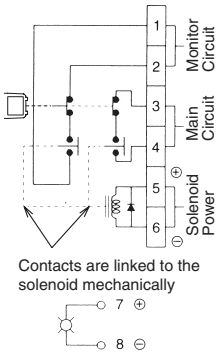
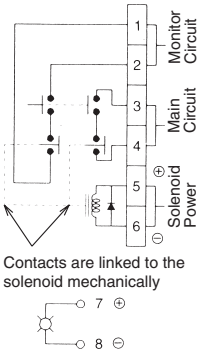
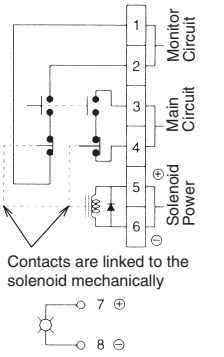
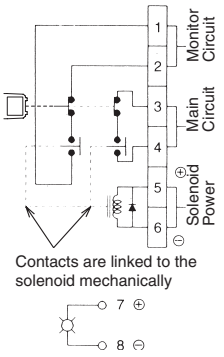
	Status 1	Status 2	Status 3	Status 4	Unlocked Manually
Switch/Door Status	• Door Closed • Machine ready to operate • Solenoid de-energized	• Door Closed • Machine cannot be started • Solenoid energized	• Door Opened • Machine cannot be started • Solenoid energized	• Door Opened • Machine cannot be started • Solenoid de-energized	• Door Closed • Machine cannot be started • Solenoid de-energized
Door					
Circuit Diagram					
Main Circuit	3-4: Closed	3-4: Open	3-4: Open	3-4: Open	3-4: Open
Aux. Circuit	1-2: Open	1-2: Open	1-2: Closed	1-2: Closed	1-2: Open
Solenoid	5-6: Power OFF	5-6: Power ON	5-6: Power ON	5-6: Power OFF	5-6: Power OFF

1. Main Circuit: used to enable the machine to start only when the main circuit is closed.
2. Auxiliary Circuit: used to indicate whether the machine circuit or door is open or closed.
3. Terminals 7 and 8 are used for the LED indicator, and are isolated from solenoid and door status.

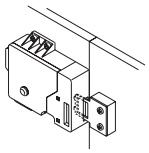
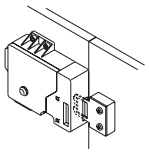
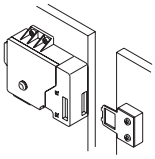
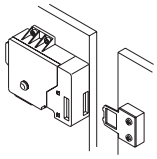
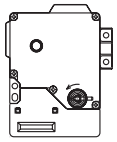
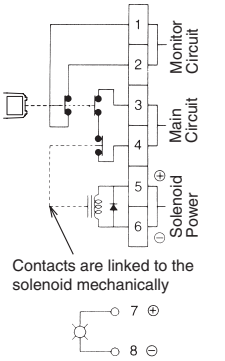
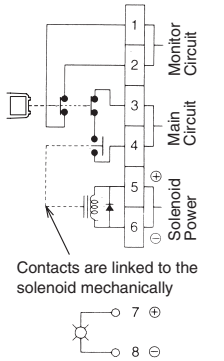
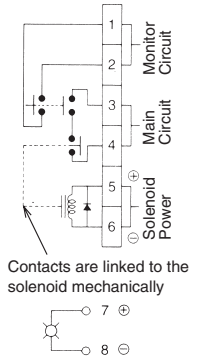
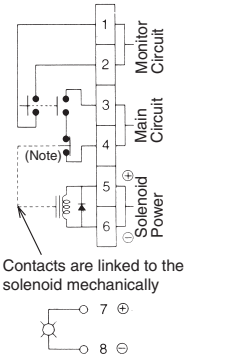
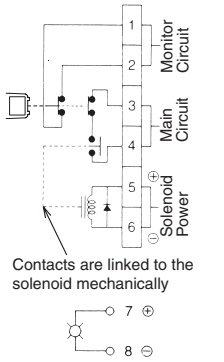
Downloaded from Arrow.com.

Application Examples and Circuit Diagrams, continued

HS1E-24 (Main Circuit: 1NC+1NC, Auxiliary Circuit: 1NC+NC)

	Status 1	Status 2	Status 3	Status 4	Unlocked Manually
Switch/Door Status	• Door Closed • Machine ready to operate • Solenoid de-energized	• Door Closed • Machine cannot be started • Solenoid energized	• Door Opened • Machine cannot be started • Solenoid energized	• Door Opened • Machine cannot be started • Solenoid de-energized	• Door Closed • Machine cannot be started • Solenoid de-energized
Door					
Circuit Diagram					
Main Circuit	3-4: Closed	3-4: Open	3-4: Open	3-4: Open	3-4: Open
Aux. Circuit	1-2: Closed	1-2: Open	1-2: Open	1-2: Open	1-2: Open
Solenoid	5-6: Power OFF	5-6: Power ON	5-6: Power ON	5-6: Power OFF	5-6: Power OFF

HS1E-34 (Main Circuit: 1NC+1NC, Auxiliary Circuit: 1NC)

	Status 1	Status 2	Status 3	Status 4	Unlocked Manually
Switch/Door Status	• Door Closed • Machine ready to operate • Solenoid de-energized	• Door Closed • Machine cannot be started • Solenoid energized	• Door Opened • Machine cannot be started • Solenoid energized	• Door Opened • Machine cannot be started • Solenoid de-energized	• Door Closed • Machine cannot be started • Solenoid de-energized
Door					
Circuit Diagram					
Main Circuit	3-4: Closed	3-4: Open	3-4: Open	3-4: Open	3-4: Open
Aux. Circuit	1-2: Closed	1-2: Closed	1-2: Open	1-2: Open	1-2: Closed
Solenoid	5-6: Power OFF	5-6: Power ON	5-6: Power ON	5-6: Power OFF	5-6: Power OFF

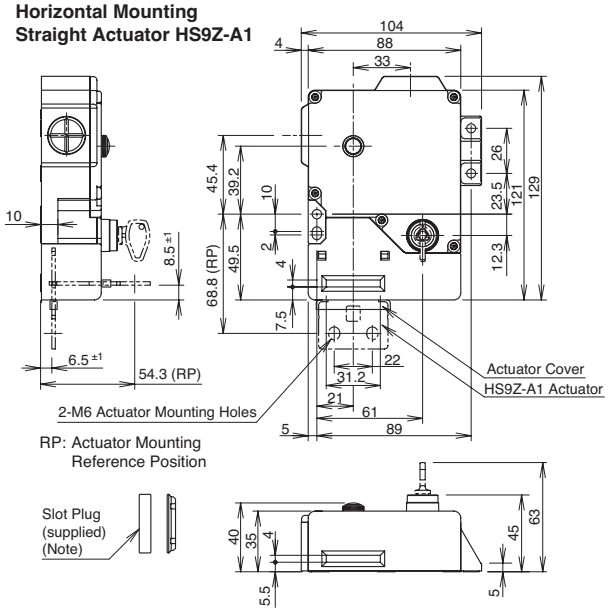
1. Main Circuit: used to enable the machine to start only when the main circuit is closed.
2. Auxiliary Circuit: used to indicate whether the machine circuit or door is open or closed.
3. Terminals 7 and 8 are used for the LED indicator, and are isolated from solenoid or door status.

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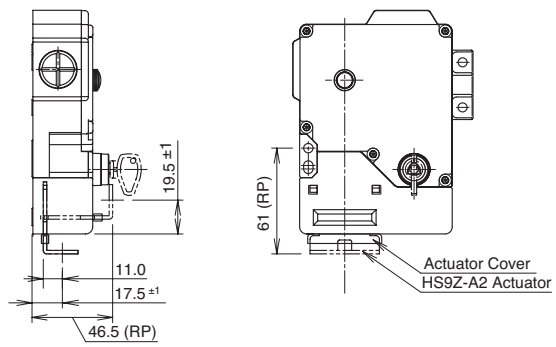
Dimensions (mm)

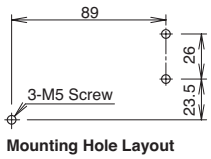
HS1E with indicator - using 1500N operating force

Horizontal Mounting
Straight Actuator HS9Z-A1



Vertical Mounting
Right-angle Actuator HS9Z-A2





Mounting Hole Layout

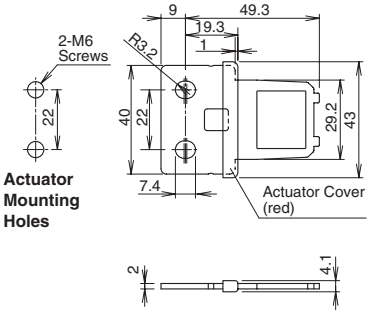
Note: Plug the unused atuator entry slot using the slot plug supplied with the interlock switch.

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Accessories

Straight Actuator (mainly for sliding doors) HS9Z-A1

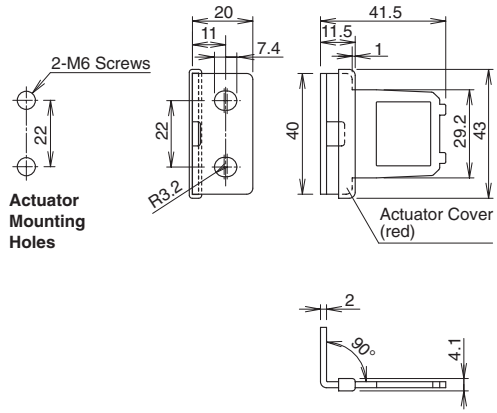




Right-angle Actuator (mainly for hinged doors) HS9Z-A2



*After installing the actuator, remove the actuator cover.

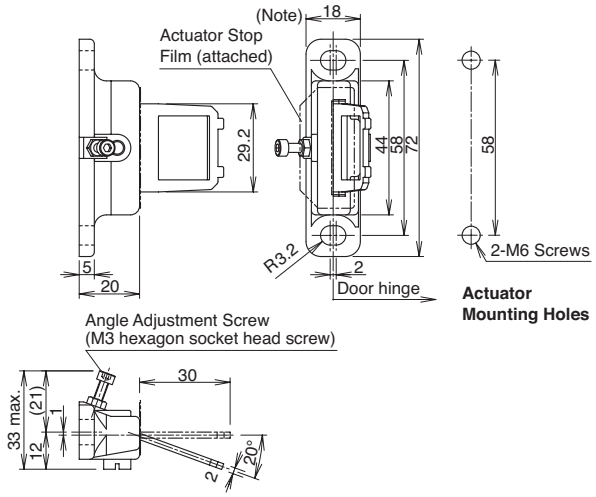


Adjustable Actuator

- The actuator angle is adjustable (0° to 20°) for hinged doors.
- The minimum radius of the door opening can be as small as 100mm.

For HS1/HS2 Series (HS9Z-A3)





All dimensions in mm.

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Accessories, continued

Actuator Angle Adjustment

- Using the screw (M3 hex socket head screw), the actuator angle can be adjusted (refer to the dimensional drawing). Adjustable angle: (0˚) to 20˚
- The larger the adjusted angle of the actuator, the smaller the applicable radius of the door opening.
- After installing the actuator, open the door. Then adjust the actuator so that its edge can be inserted properly into the entry slot of the safety switch.
- Recommended tightening torque: 0.8 N-m (approx. 8.0 kgf-cm)
- After adjusting the actuator angle, apply loctite or the like to the adjustment screw so as to prevent its loosening.

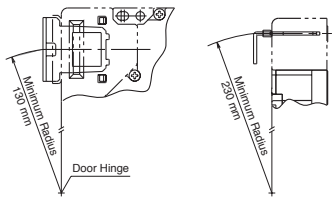
Minimum Radius of Hinged Door

- When using the interlock switch for a hinged door, refer to the minimum radius of doors shown below. For the doors with small minimum radius, use angle adjustable actuators (HS9ZA3 or HS9Z-A3S).

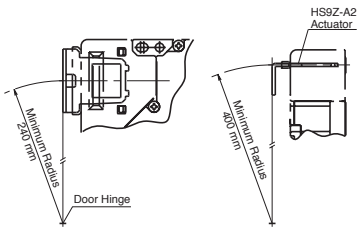
Note: Because deviation or dislocation of hinged door may occur in actual applications, make sure of the correct operation before installation.

HS9Z-A2 Actuator

- When the door hinge is on the extension line of the interlock switch surface:

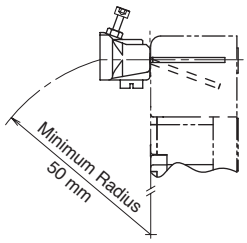


- When the door hinge is on the extension line of the actuator mounting surface:

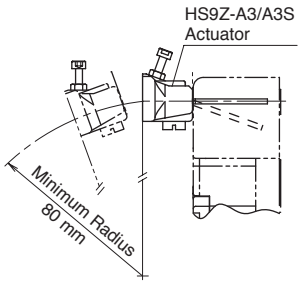


When using the HS9Z-A3 Angle Adjustable (vertical) Actuator

- When the door hinge is on the extension line of the interlock switch surface:



- When the door hinge is on the extension line of the actuator mounting surface:



Downloaded from Arrow.com.

Safety Precautions

- In order to avoid electric shock or a fire, turn the power off before installation, removal, wire connection, maintenance, or inspection of the switch.
- If relays are used in the circuit between the safety switch and the load, consider degrees of the danger and use safety relays, since welded or sticking contacts of standard relays may invalidate the functions of the safety switch.
- Do not place a PLC in the circuit between the safety switch and the load. The safety security can be endangered in the event of a malfunction of the PLC.
- Do not disassemble or modify the switch. It may cause a breakdown or an accident.

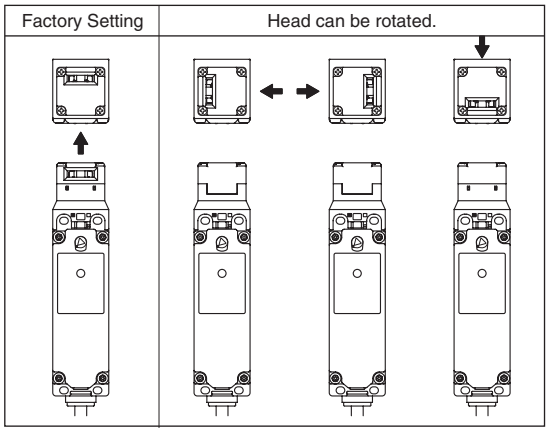
Operation Precautions - for all series

- Regardless of door types, do not use the safety switch as a door stop. Install a mechanical door stop at the end of the door to protect the safety switch against excessive force.
- Do not apply excessive shock to the switch when opening or closing the door.
- A shock to the door exceeding 1,000 m/sec^2 (approx. 100G) may cause the contacts of the switch to chatter, and a malfunction of the switch may occur.
- For connection of wires, unscrew the cover. Unnecessary loosening of other screws may cause a malfunction of the switch.
- Prevent foreign objects such as dust and liquids from entering the switch while connecting conduit or wiring.
- If the operating atmosphere is contaminated, use a protective cover to prevent the entry of foreign objects into the switch through the actuator entry slots.
- Entry of a considerable amount of foreign objects into the switch may affect the mechanism of the switch and cause a breakdown.
- Do not store the switches in a dusty, humid, or organic-gas atmosphere.

HS5E/HS5B Precautions

For Rotating Head Directions

- The heads of the HS5E/HS5B can be rotated in 90° increments after removing the 4 screws on the corners of the head. Prevent entry of foreign objects into the switch during removal of the head. Tighten these screws with torque designated in the instruction sheet. Improper torque may cause errors.



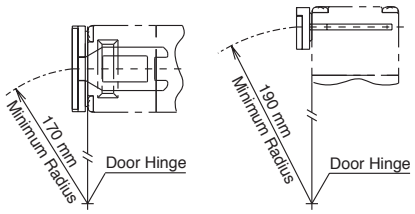
Minimum Radius of Hinged Doors

- When using the interlock switch on hinged doors, refer to the minimum radius of doors shown below. When using on doors with small minimum radius, use the angle adjustable actuator (HS9Z-A55).

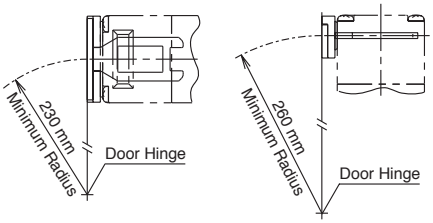
Note: Because deviation or dislocation of hinged doors may occur in actual applications, make sure of the correct operation before installation.

When using the HS9Z-A52 Actuator

- When the door hinge is on the extension line of the interlock switch surface:



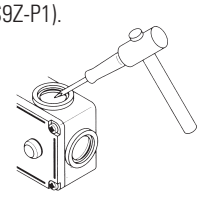
- When door hinge is on the extension line of the actuator mounting surface:



HS2B Precautions

Wire Connection

- The HS2B has 3 conduit ports, which are closed as a part of the molded switch housing.
- Make an opening for wire connection by breaking one of the conduit-port knockouts on the switch housing using a screwdriver.
- When breaking the conduit port, take care not to damage the contact block or other parts inside the switch.
- Cracks or burrs on the conduit entry may deteriorate the housing protection against water.
- When changing to another conduit port, close the unused opening with an optional plug (Part No. HS9Z-P1).

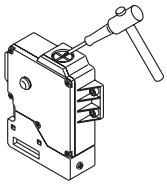


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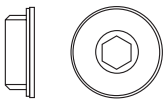
HS1E Precautions

Wire Connection

- Make an opening for wire connection by breaking one of the conduit-port knockouts on the switch housing using a screwdriver.
- Before breaking the knockout, temporarily remove the connector-fixing lock nut from the switch.
- When breaking the knockout, take care not to damage the contact block or other parts inside the switch.
- Cracks or burrs on the conduit entry may deteriorate the housing protection.
- When changing to the other conduit port, close the unused opening with an optional plug (accessory).



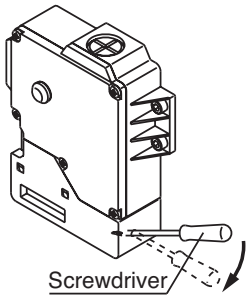
Plug
Type No. HS9Z-P1

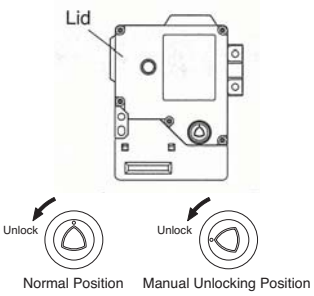


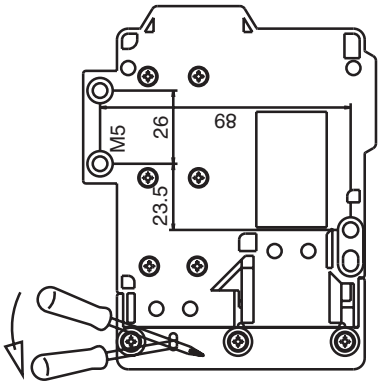
Manual Unlocking

- Remove the screw located on the unlocking entry at the side of the switch using the key wrench included with the switch. Then insert a small screwdriver into the switch to push the lever inside of the switch toward the indicator until the actuator is unlocked (refer to the diagram on the right).
- Insert a small screwdriver into the elliptical hole on the back of the switch, then push the lever inside of the switch toward the indicator until the actuator is unlocked (refer to the diagram on the right).

1. This unlocking method is intended for an escape from a machine when a person is locked in. For access to the unlocking entry, an access hole should be opened on the mounting panel. When opening the hole, apply proper protection against water or other foreign objects.
2. Caution: After the unlocking operation, put the screw back into the unlocking entry for safety.



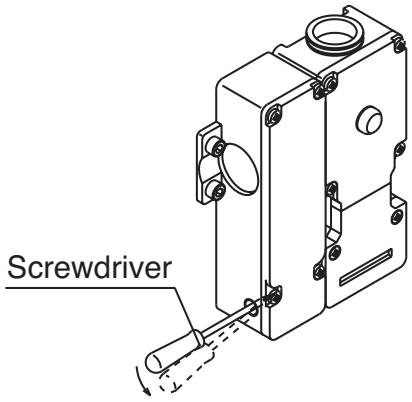




HS1C Precautions

- Regardless of door type, do not use the safety switch as a locking device. Install a locking device independently, for example, using a metal latch (also applicable to HS1E).
- The safety switch cover can be only removed with the special key wrench supplied with the switch or with the optional screwdriver (also applicable to HS1B and HS1E).
- Remove the screw located on the unlocking entry at the side of the switch using the key wrench included with the switch. Then insert a small screwdriver into the switch to push the lever inside of the switch toward the indicator until the actuator is unlocked (refer to the diagram on the right).

Caution: After the unlocking operation, put the screw back into the unlocking entry for safety.

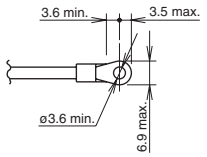


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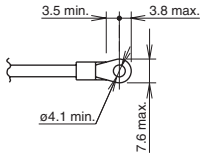
Operation Precautions

Applicable Crimping Terminals

- (Refer to the Crimping Terminal 1 or 2 shown in the drawing below.)
- HS1C
  Terminals No. 1 to 6: Use solid or stranded wires only (crimping terminals not applicable).
  Terminals No. 7 and 8: Crimping Terminal 1
  Ground Terminal: Crimping Terminal 2
- HS1B
  Ground Terminal: Crimping Terminal 2
  Other Terminals: Crimping Terminal 1
  HS2B, HS5B, and HS1E
  Crimping Terminal 1

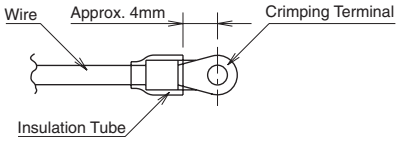


Crimping Terminal 1



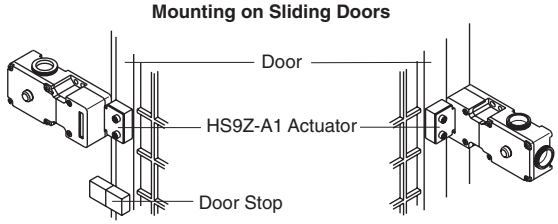
Crimping Terminal 2

Use an insulation tube on the crimping terminal.

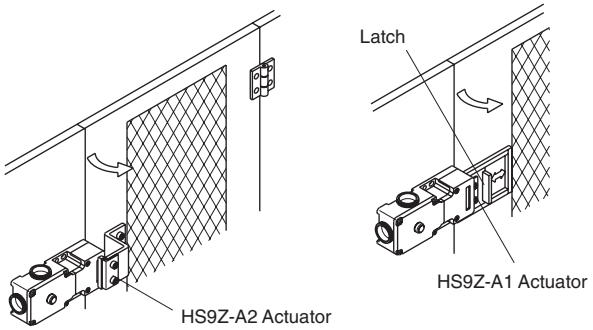


Installation Examples (see the diagrams below)

Mounting on Sliding Doors

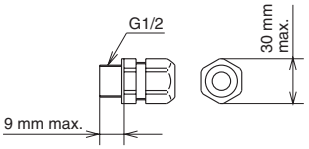


Mounting on Hinged Doors



Applicable Connectors (As shown below)

- Use connectors which maintain the IP67 protection.
- Applicable Connector Dimensions
- Flex Conduit: VF03 (Japan Flex) www.nipolex.co.jp
- Steel Connector (G1/2): ALC-103
  (PF13.5): RBC-103PG13.5



Recommended Screw Tightening Torque

- HS1C: 5.0±0.5 N-m (approx. 50±5 kgf-cm)
  (4 or 6 pcs of M5 hex socket head cap screws)
- HS1B: 5.0±0.5 N-m (approx. 50±5 kgf-cm)
  (2 or 4 pcs. of M5 hex socket head cap screws)
- HS2B: 5.0±0.5 N-m (approx. 50±5 kgf-cm)
  (2 pcs of M5 hex socket head cap screws)
- HS5B: 4.0±0.4 N-m (approx. 40±4 kgf-cm)
  (2 pcs of M4 hex socket head cap screws)
- HS1E: 5.0±0.5 N-m (approx. 50±5 kgf-cm)
  (4 or 6 pcs of M5 hex socket head cap screws)
- Actuator (HS9Z-A1/A2)
  5.0±0.5 N-m (approx. 50±5 kgf·cm)
- (2 pcs. of M6 hex socket head cap screws)
  Actuator (HS9Z-A51/A52)
- 2.0±0.2 N-m (approx. 20±2 kgf·cm)
  (2 pcs of M4 hex socket head cap screws)
- 1.0±0.2 N-m (approx. 10±2 kgf·cm)
  (2 pcs of M4 Phillips screws)

The screws are supplied by the user.

Applicable Wire Size

- HS1C: 0.5 to 0.75 mm^2 (Terminals No.1, 2, 5 to 8)
  1.0 to 1.25 mm^2 (Terminals No.3, 4, and grounding terminal)
- HS5B: 0.5 to 1.25 mm^2
- HS1E: 0.5 to 1.25 mm^2

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Actuator Angle Adjustment

- Using the screw (M3 hex socket head screw), the actuator angle can be adjusted (refer to the dimensional drawing). Adjustable angle: (0°) to 20°
- The larger the adjusted angle of the actuator, the smaller the applicable radius of the door opening.
- After installing the actuator, open the door. Then adjust the actuator so that its edge can be inserted properly into the entry slot of the safety switch.
- Recommended tightening torque: 0.8 N-m (approx. 8.0 kgf-cm)
- After adjusting the actuator angle, apply loctite or the like to the adjustment screw so as to prevent its loosening.

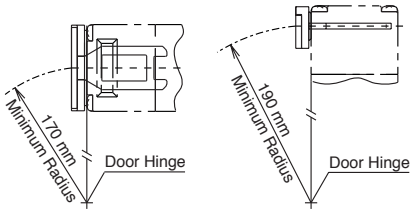
Minimum Radius of Hinged Door

- When using the interlock switch on hinged doors, refer to the minimum radius of doors shown below. When using on doors with small minimum radius, use the angle adjustable actuator (HS9Z-A55).

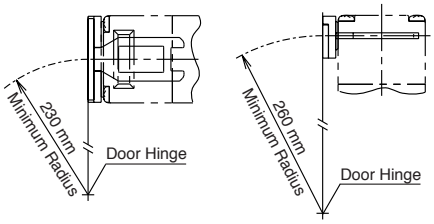
Note: Because deviation or dislocation of hinged doors may occur in actual applications, make sure of the correct operation before installation.

When using the HS9Z-A52 Actuator

- When the door hinge is on the extension line of the interlock switch surface:



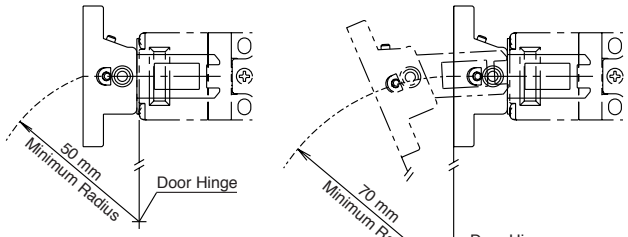
- When door hinge is on the extension line of the actuator mounting surface:



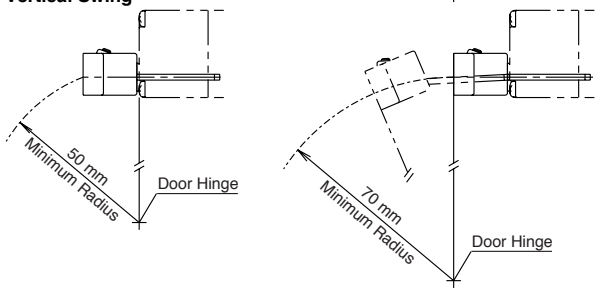
When using the HS9Z-A55 Angle Adjustable Actuator

- When door hinge is on the extension line of the interlock switch surface: 50 mm
- When door hinge is on the extension line of the actuator mounting surface: 70 mm

Horizontal Swing



Vertical Swing

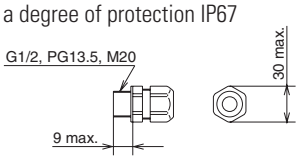


Actuator Angle Adjustment for the HS9Z-A55

- Using the angle adjustment screw, the actuator angle can be adjusted (see figures on page 370. Adjustable angle: 0 to 20°
- The larger the adjusted angle of the actuator, the smaller the applicable radius of the door opening.
- After installing the actuator, open the door. Then adjust the actuator so that its edge can be inserted properly into the actuator entry slot of the interlock switch.
- After adjusting the actuator angle, apply Loctite to the adjustment screw so that the screw will not loosen.

Applicable Cable Glands

Use a cable gland with a degree of protection IP67



all dimensions in mm

When Using Flexible Conduits (Example)

Flexible conduit example: VF-03 (Nihon Flex)

Conduit Port Size	Plastic Cable Gland	Metal Cable Gland
G1/2	—	RLC-103 (Nihon Flex)
PG13.5	—	RBC-103PG13.5 (Nihon Flex)
M20	—	RLC-103EC20 (Nihon Flex)

When Using Multi-core Cables (Example)

Conduit Port Size	Plastic Cable Gland	Metal Cable Gland
G1/2	SCS-10* (Seiwa Electric)	ALS-16** (Nihon Flex)
PG13.5	ST13.5 (K-MECS)	ABS-**PG13.5 (Nihon Flex)
M20	ST-M20X1.5 (K-MECS)	ALS-**EC20 (Nihon Flex)

- Different cable glands are used depending on the cable sheath outside diameter. When purchasing a cable gland, confirm that the cable gland is applicable to the cable sheath outside diameter.
- When using a 1/2-14NPT cable gland, use the HS5B interlock switch with M20 conduit port (Part No.: HS5B-***BM) together with an adapter (Part No.: MA-M/NPT 20X1.5 5402-0110, K-MECS) and a gasket (Part No.: GP M20, K-MECS). Install a gasket between the interlock switch and the adapter. Apply sealing tape between the cable gland and the adapter to make sure of IP67 protection for the enclosure.

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